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Akkerman, A.

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CHAPTER 4

JOB SATISFACTION OF PEOPLE WITH INTELLECTUAL DISABILITIES: ASSOCIATIONS WITH JOB CHARACTERISTICS AND PERSONALITY

This chapter is based on:

Akkerman, A., Kef, S., & Meiningier, H.P.

*Job satisfaction of people with intellectual disabilities:
associations with job characteristics and personality.*

Manuscript under review.

ABSTRACT

Background To obtain an understanding of factors associated with job satisfaction of persons with intellectual disabilities, this study investigates the associations of job satisfaction with job characteristics (i.e. job demands and job resources) and personality, using the job demands-resources model.

Method Data were gathered from 117 persons and their employment support workers, using structured questionnaires adapted from well-established instruments.

Results Job resources and age were positively associated with job satisfaction. Job demands and personality showed no significant direct associations with job satisfaction. Moderation analyses showed that for people with intellectual disabilities with high conscientiousness, enhanced job demands were associated with reduced job satisfaction, which was not the case for those with low conscientiousness.

Conclusions This study points to the potential role of job design in job satisfaction of people with intellectual disabilities, particularly providing positive, resourceful job characteristics may be useful.

INTRODUCTION

Work is a significant part of life for many persons with intellectual disabilities. Paying attention to their job satisfaction is essential. Job satisfaction is considered an indicator for subjective quality of life (Cummins, 2005; Spector, 1997), and is as such a major work-related goal for people with intellectual disabilities. Moreover, research shows strong associations between job satisfaction and life satisfaction (Judge & Klinger, 2008; Schalock, Bonham, & Marchand, 2000), as well as between job satisfaction and various workplace behaviours, such as job performance, attendance at work, counterproductive behaviour, and turnover decisions (Spector, 1997; Judge & Klinger, 2008; Fritzsche & Parrish, 2005). Awareness for job satisfaction of people with intellectual disabilities hence is significant for both individual functioning and well-being, as well as organizational effectiveness. It provides employers and those providing employment support with information that is useful for the evaluation of employment situations and support effectiveness.

Considering the significance of the topic, in mainstream industrial and organizational psychology an extensive amount of research has been devoted to job satisfaction (Judge & Church, 2000; Spector, 1997). For people with intellectual disabilities however, this domain remains relatively under-investigated. Knowledge on the important factors related to job satisfaction of people with intellectual disabilities is limited and incomplete, and does not sufficiently contribute to a comprehensive understanding of the various factors associated with their job satisfaction (Akkerman, Janssen, Kef, & Meininger, 2016; McAfee & McNaughton, 1997; Moseley, 1988). Greater clarity on this is needed, in order to provide effective workplace support, select or develop suitable jobs, and enhance ongoing job development of people with intellectual disabilities.

Theoretical background

Job satisfaction has mostly been described as "a pleasurable or positive emotional state resulting from the appraisal of one's job or job experience" (Locke, 1976, p.1300). In general organizational literature it is well established that job characteristics are an important antecedent of job satisfaction (Frye, 1996; Fritzsche & Parrish, 2005; Judge & Church, 2000; Judge & Klinger, 2008). Research among people with intellectual disabilities reflects these findings. When people with intellectual disabilities are asked about their job satisfaction the work itself emerges as an important factor (Lysaght, Ouellette-Kuntz, & Morrison, 2009; Test, Hinson, Solow, & Keul, 1993; Test, Carver, Ewers, Haddad, & Person, 2000). Various job characteristics are brought forward, such as job demands, social relations, received support, meaningfulness, autonomy, and opportunities for using competencies (Akkerman, Janssen, Kef, & Meininger, 2014).

The job demands-resources model (JD-R) model (Bakker & Demerouti, 2007; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001), is a theoretical model, that assumes employee well-being may be produced as a consequence of two general categories of job characteristics: job demands and job resources. Job demands refer to "those physical, psychological, social, or organizational aspects of the job that require sustained physical and/or psychological (cognitive and emotional) effort or skills and are therefore associated with certain physiological and/or psychological costs" (Bakker & Demerouti, 2007, p.312). Job resources refer to "those physical, psychological, social or organizational aspects of the job that are either/or (a) functional in achieving work goals (b) reduce job demands and the associated physical and psychological costs, (c) stimulate personal growth, learning and development." (Bakker & Demerouti, 2007, p.312). The JD-R model has proven useful in providing insight in the relationship between job characteristics and various aspects of employee well-being, including job satisfaction (e.g. Bakker, Demerouti, De Boer, & Schaufeli, 2003; Bakker, Demerouti, & Verbeke, 2004; Bos, Donders, Bouwman-Brouwer, & Van der Gulden, 2009; De Lange, De Witte, & Notelaers, 2008). Findings from both employees with and without intellectual disabilities indicate that job demands have are negatively associated with job satisfaction, whereas job resources are positively related to job satisfaction (e.g. Bos et al., 2009; Flores, Jenaro, Orgaz, & Martin, 2011; Nielsen, Mearns, Mathiesen, & Eid, 2011). Within the JD-R model, the choice of specific job demands and job resources to be included in a study is dependent upon the study context. Based on results of previous research (Akkerman et al., 2014) in this study three job demands (psychological demands, physical demands, emotional demands), and five job resources (decision authority, opportunities for skill utilization, meaningfulness, social support from co-workers, social support from mentor) were selected.

Job characteristics are not the only possible determinants of job satisfaction. Current theoretical models recognize that job satisfaction is related to both situational and personal factors (Fritzsche & Parrish, 2005; Judge & Klinger, 2008). There is particularly strong evidence for relationships between personality traits and job satisfaction (Judge, Heller, & Mount, 2002; Judge & Larsen, 2001).

In intellectual disabilities research personality traits have received limited attention, even though it has been noted that personality may affect the well-being and successful community participation of people with intellectual disabilities (e.g. Lidher, Martin, Jayaprakash, & Roy, 2005). Therefore, in order to retain a more comprehensive understanding of job satisfaction of people with intellectual disabilities, in this study, the JD-R model was extended, by including personality traits. This is in line with current studies on the JD-R model, which point to the significance of integrating personal resources (i.e. "the psychological characteristics or aspects of the self that are generally associated with resiliency and that

refer to the ability to control and impact one's environment successfully") (Schaufeli & Taris, 2014, p.49). Three traits from the five factor model of personality were selected: extraversion, neuroticism and conscientiousness, which were shown to correlate with job satisfaction of people without disabilities in a meta analysis (Judge et al., 2002). Neuroticism (or emotional instability) refers to the tendency to experience negative emotions, and is expected to be negatively associated to job satisfaction. Individuals scoring high on neuroticism are prone to anxiety, tend to be fearful in novel situations, and are more vulnerable to aversive stimuli and the effects of stress. They are susceptible to feelings of dependence and helplessness and tend to put themselves more often in situations that foster negative affect. Extraverted individuals on the other hand are characterized by sociability, talkativeness, assertiveness and excitability and are predisposed to experience positive emotions, hence are also expected to have higher levels of job satisfaction. Conscientiousness is assumed to influence job satisfaction, because it represents a tendency to act dutifully and aim for achievement, enhancing possibilities of obtaining satisfying work rewards (e.g. promotions, recognition, feelings of accomplishment).

In addition to the possible main effects of personality traits on job satisfaction, research suggests that an individual's traits may also affect the way he experiences and perceives the characteristics of the job. Furthermore, personality traits may act as a moderator on the relationship between job characteristics and job satisfaction, as the relationship between job demands or job resources and job satisfaction might be different depending on a person's traits (Bakker et al., 2010; Boudrias et al., 2011; Judge, Bono, & Locke, 2000; Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2007). The direct and indirect roles of personality traits in relation to job satisfaction are not mutually exclusive, partial forms of all of these relationships could be found, and therefore, in addition to studying the direct pathways between personality traits and job satisfaction, indirect pathways were explored as well. Moreover, to enhance understanding, and considering the specific situation and characteristics of people with intellectual disabilities, several characteristics that may be expected to relate with job satisfaction were added as control variables in the model: gender, age, IQ-level and the distinction between integrated and sheltered employment, which was found to be associated with job satisfaction of people with intellectual disabilities in previous research (Akkerman et al., 2016).

This study

The aim of this study is to extend the knowledge on job satisfaction of people with intellectual disabilities in integrated and sheltered employment, in order to clarify differences in job satisfaction levels between individuals and employment settings, and to highlight possible points of intervention. Using the JD-R model this study investigates the role of job demands

(psychological demands, physical demands, emotional demands), job resources (decision authority, opportunities for skill utilization, meaningfulness, social support from co-workers, social support from mentor), and personality traits (neuroticism, extraversion, conscientiousness) in relation to job satisfaction. Moreover, the study explores potential mediating and moderating pathways between personality traits, job characteristics and job satisfaction (see Figure 1).

In accordance with the available literature, we expect that (1) job demands, job resources, and personality traits are significant predictors of job satisfaction. Specifically, lower job demands, higher job resources, lower neuroticism, higher extraversion, and higher conscientiousness will predict higher job satisfaction; (2) personality traits will effect perceptions of job characteristics, such that job characteristics partly mediate the effect of personality traits on job satisfaction; and (3) personality traits will moderate the relationship between job characteristics and job satisfaction.

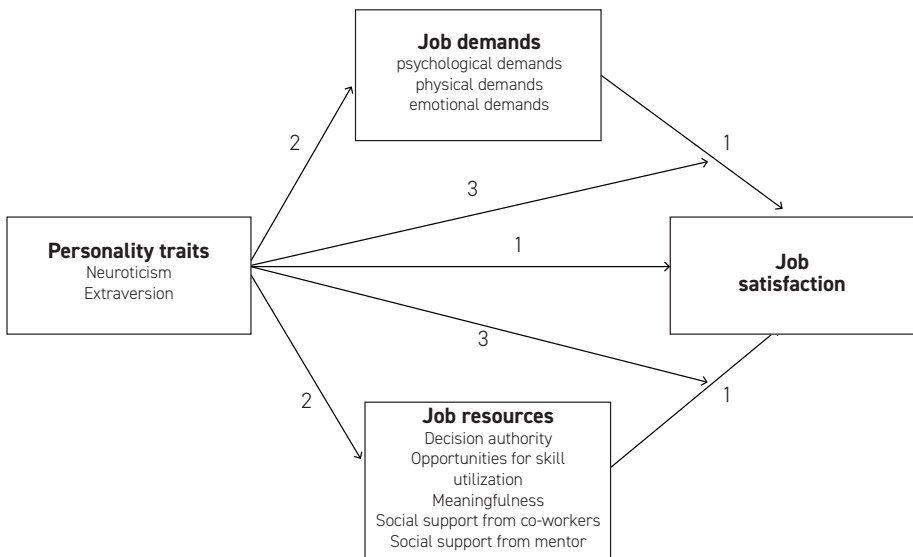


Figure 1. Model of factors associated with job satisfaction (1 direct effect; 2 mediating effect; 3 moderating effect).

METHOD

Procedure

Letters seeking participation in the research were sent to 428 persons drawn from the register of a Dutch care organization. This organization provides support to people with intellectual disabilities in sheltered employment, by means of work activities in several day centres, and integrated employment. Every fifth client from the organization's alphabetically ordered register was approached. Clients qualified for the study that met the following inclusion criteria: (1) between 18 and 67 years old; (2) intellectual disability as primary diagnosis; (3) moderate or mild intellectual disability, or borderline intellectual functioning; (4) sufficient communication ability in Dutch, with at least some verbal expression (judged by mentor); (5) at least two months in present employment setting; (6) informed consent by client and, if appropriate, legal representatives. Exclusion criteria were (1) severe visual or hearing deficits; (2) no current work activities (staying at home or having recreational day care). Letters were accompanied by brochures describing the research project in simple terms, and included information about confidentiality and anonymity. Participants were approached through their mentors, who would screen for eligibility based on the in- and exclusion criteria, and clarified the information if necessary. A reminder was sent when needed. The study was executed in compliance with a research design that had been approved by the client advisory board of the service organization (D-13 171).

Of the 428 people approached, 145 persons were willing to participate, 205 indicated they did not want to participate, and 78 persons did not respond. Of those willing to participate, 28 more dropped out for reasons of no show, no permission from their legal representative, or being unfit for participation (e.g. not meeting inclusion criteria, too much tension), resulting in a total of 117 participants in this study. Interviews typically took place at the employment setting, or, whenever this was not possible, at their place of residence.

Respondents were individually interviewed by trained interviewers. All interviews were preceded by three test-items, to check for understanding, and provide a means for the respondent to set at ease and practice. Several measures were taken in order to increase comprehension, as recommended for interviewing people with intellectual disabilities (Finlay & Lyons, 2001). Questions were phrased with low frequent use of reverse wording, used easy language and no ambiguous or complex phrasings. Questions were read orally to each respondent, and also presented by means of a written card. All answers were on the same 5-point scale (totally agree – totally disagree), and were displayed on five separate cards, in different shades of green and red. Cards with the answers were laid out on the table and the respondent was asked to place the question card below the appropriate answer card. Respondents would be asked to elaborate on their answers, to give the interviewer

additional information on their views and an indication on how the question was understood. Whenever necessary, questions could be rephrased, according to a prescribed manner, set out in a protocol. When a scoreable answer was not possible, the questionnaire allowed for registrations of missing or uncodeable answers. As this study was part of a larger research project, additional interview questions which did not relate to job demands and job resources (not reported in this article) were also asked. The average length of the interviews was 75 minutes. The actual interviews were preceded by a pilot interview, to eliminate errors in the questionnaire and scoresheet.

Data on personality was obtained through the job coach/support staff at work, who was well acquainted with the client and been working with him for at least two months, and was obtained by means of a questionnaire, that could be filled out on paper or online, in a maximum of 15 minutes.

Participants

Of the 117 participants, 57 were male (49%) and 60 female (51%). The mean age of the participants was 37 years. 21% of the participants had a moderate intellectual disability (IQ range 35-50), 66% had a mild intellectual disability (IQ range 50-70), 13% borderline intellectual functioning (IQ range 70-85). Most of the participants (73%) worked in sheltered employment, a total of 27 day centres was included in the study. The day centres varied in the amount of support, degree of community integration and activities provided (e.g. manufacturing, gardening, hospitality, painting, shop assistance, animal care, cleaning). 27% of the participants worked in integrated employment, in various jobs (e.g. cleaning, shop assistance, hospitality, gardening, manufacturing), mostly in individual placements (87%), some were in group placements (13%). All participants had been declared unfit for gainful employment according to Dutch legislation. As such they were all reliant on government benefits for their income, and their jobs were unpaid.

Measures

Job satisfaction was assessed using a 5-item job satisfaction scale, developed by Judge, Locke, Durham and Kluger (1998), which was based on the Brayfield and Rothe (1951) job satisfaction scale, and has proven to be a reliable measure in other studies (e.g. Judge et al., 2000). The scale was chosen as it provides an overall, global measure of job satisfaction, contains a limited number of items and uses simple words and phrases. The scale comprises both positively and negatively worded items (e.g. "I find real enjoyment in my work", "I consider my job rather unpleasant"). Cronbach's α of the scale was 0.77 in this study.

The items measuring job characteristics (i.e. job demands and job resources) were adapted from well-established Dutch job content questionnaires. Items were modified when necessary, for needs of simplification, and so that all items were formulated as statements in affirmative form. When necessary scales were supplemented with new items. Job demands were measured using three subscales (i.e. psychological demands, physical demands and emotional demands). Items for psychological demands (5 items, e.g., "My job requires working very hard"; Cronbach's $\alpha = 0.60$) were adapted from a Dutch version of the Job Content Questionnaire (JCQ; Karasek, Brisson, Kawamaki, Houtman, et al., 1998) and the questionnaire of Van Veldhoven and Meijman (1994). Items measured both workload and cognitive demands. Physical demands (3 items, e.g. "In my job I am required to move or lift very heavy loads"; Cronbach's $\alpha = 0.58$) were adapted from Van der Doef and Maes (1999). Emotional demands (3 items, e.g. "In my job I have to deal with difficult people"; Cronbach's $\alpha = 0.60$) were measured with a self-constructed scale, and refers to the emotional stress associated with unpleasant situations. Cronbach's alpha for the overall job demands scale was 0.68. Job resources were measured using five subscales (i.e. decision authority, opportunities for skill utilization, meaningfulness, social support from co-workers, social support from mentor). Decision authority (5 items, e.g. "I can decide the order in which I do my work on my own"; Cronbach's $\alpha = 0.66$) was based on Van Veldhoven and Meijman (1994). Opportunities for skill utilization (3 items, e.g. "I get to do a variety of different things on my job"; Cronbach's $\alpha = 0.68$) were adapted from Van der Doef and Maes (1999). Meaningfulness was measured with a self-constructed scale (4 items, e.g. "The work I do is important"; Cronbach's $\alpha = 0.68$), and refers to the enjoyment and pride of doing something ego-strengthening and worthwhile. For the subscale social support from coworkers (7 items, e.g. "If I have problems in my job I can ask my colleagues for help"; Cronbach's $\alpha = 0.67$) five items measuring both social and work related aspects of interaction were selected from Van der Doef and Maes (1999), supplemented with two self-constructed items (e.g. "I can have fun with my colleagues") based on previous research (Akkerman et al., 2014). Social support from mentor (7 items, e.g. "If I have problems in my job I can ask my mentor for help"; Cronbach's $\alpha = 0.71$) was measured with a self-constructed scale, with items adapted from the subscale social support from coworkers and grounded in previous research (Akkerman et al., 2014). Items were selected measuring both social and support-related aspects of the relationship with the mentor. Cronbach's alpha for the overall job resources scale was 0.78. All job characteristics were measured on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Responses were coded such that higher scores referred to higher job demands and more job resources.

Personality traits (neuroticism, extraversion, conscientiousness) were assessed using the Big Five Inventory-10 (BFI-10; Rammstedt & John, 2007), a 10-item short version of the Big Five Inventory (BFI; John, Donahue & Kentle, 1991). Brief personality measures have been found suitable for use in research settings with time constraints, and the BFI-10 was found to have adequate levels of reliability and validity (Rammstedt & John, 2007). In this study internal consistency of the scales was low, Cronbach's alpha was 0.51 for neuroticism, 0.35 for extraversion, and 0.43 for conscientiousness, due to the fact that only two items were used per scale, with low content overlap for validity considerations. Answers were scored on a 5-point scale, ranging from 1 (totally disagree) to 5 (totally agree), with higher scores indicating less neuroticism (i.e. more emotional stability), more extraversion, and more conscientiousness.

Data on the control variables employment type (which refers to the difference between integrated and sheltered employment), IQ-level, age, and gender was obtained from the client records of the participating organization. Data on IQ-level was determined by a behavioural scientist. Three levels were discerned: moderate intellectual disability, mild intellectual disability, and borderline intellectual functioning.

Data analysis

The data were analysed using IBM SPSS statistics version 21. All variables were checked for outliers ($Z \geq 3.29$ or ≤ -3.29), which were winsorized to the nearest non-outlier (Tabachnik & Fidell, 2007). This happened in three cases.

The first hypothesis of the study on the direct pathways between job characteristics, personality traits and job satisfaction was tested using multiple regression analysis. Job satisfaction scores were included as the dependent variable, job demands, job resources, neuroticism, extraversion and conscientiousness as independent variables. Preliminary analyses were performed to ensure no violation of the assumptions of normality, linearity, and homoscedasticity, and after verifying the lack of multicollinearity among explanatory variables, by using the tolerance index and the VIF.

The second hypothesis of this study on mediating effects of job characteristics on the relationship between personality traits (i.e. neuroticism, extraversion, conscientiousness) and job satisfaction was tested using multiple regression analysis, following the procedure as described by Baron & Kenny (1986). Evidence for the third hypothesis, pertaining to the moderating role of personality traits was examined using hierarchical regression procedures, using standardized scores. The predictor variable was entered at first step, followed by the moderating variable as the second step. In the third step the interaction term for the predictor variable and the moderator variable was entered. Separate analyses were conducted for each of the three moderators (i.e. neuroticism, extraversion, conscientiousness).

RESULTS

Descriptive analyses

Table 1 presents mean scores and standard deviations on job demands, job resources, neuroticism, extraversion, conscientiousness and job satisfaction, for the overall sample and for sheltered and integrated employment separately. Descriptives are provided for the overall scales, as well as for the subscales of job resources and job demands, in order to gain deeper insight into the work situations and aid data interpretation.

The mean level of job satisfaction was 4.33 (SD = 0.78), indicating that the participants were generally satisfied with their jobs. Contrary to expectations, there was no difference in job satisfaction level between participants in integrated and sheltered employment as determined by one-way ANOVA ($F(1,114) = 0.06, p = 0.805$). Analysis of variance also indicated no significant differences between men and women ($F(1,114) = 0.55, p = 0.459$), and different IQ-levels ($F(2,112) = 1.782, p = 0.173$) with respect to job satisfaction. Therefore, the effects of employment type, gender and IQ-level were not controlled for in subsequent analyses.

Table 1. Means and standard deviations for job demands, job resources, neuroticism, extraversion, conscientiousness, and job satisfaction

	Integrated employment ¹		Sheltered employment ²		Total ³	
Scale	Mean	SD	Mean	SD	Mean	SD
Job demands	2.89	0.65	3.04	0.71	3.00	0.69
Psychological demands	3.58	0.82	3.62	0.86	3.61	0.85
Physical demands	2.40	0.99	2.35	1.13	2.37	1.09
Emotional demands	2.25	0.82	2.76	1.11	2.62	1.06
Job resources	4.23	0.46	4.27	0.42	4.26	0.43
Decision authority	3.50	0.99	3.70	0.90	3.65	0.93
Skill utilization	3.86	1.12	4.26	0.98	4.16	1.03
Meaningfulness	4.64	0.55	4.70	0.48	4.68	0.50
Social support co-workers	4.43	0.51	4.05	0.74	4.15	0.71
Social support mentor	4.49	0.48	4.67	0.43	4.62	0.45
Neuroticism	2.56	1.09	2.49	0.91	2.51	0.96
Extraversion	3.52	1.06	3.67	0.92	3.63	0.96
Conscientiousness	3.87	0.97	3.62	0.86	3.69	0.89
Job satisfaction	4.29	0.83	4.34	0.77	4.33	0.78

¹ N = 31; ² N ranges from 81 to 86 due to missing data; ³ N ranges from 112 to 117 due to missing data

A series of multivariate ANOVAs were conducted to compare participants in integrated and sheltered employment with respect to (1) perceived job demands (overall job demands, psychological demands, physical demands, emotional demands); (2) perceived job resources (overall job resources, decision authority, skill utilization, meaningfulness, social support from co-workers and social support from mentors); and (3) personality traits (neuroticism, extraversion, conscientiousness). The multivariate results indicated a difference in level of perceived job resources between participants in integrated and sheltered employment, Wilks' $\Lambda = 0.825$, $F(6,109) = 3.84$, $p = 0.002$. The univariate F tests showed there was a significant difference between integrated and sheltered employees for 'opportunities for skill utilization', $F(1,114) = 4.16$, $p = 0.044$, and 'social support from co-workers', $F(1,114) = 6.99$, $p = 0.009$, with participants in integrated employment reporting less opportunities for skill utilization and more social support from co-workers. No significant multivariate results were found with respect to job demands, Wilks' $\Lambda = 0.945$, $F(3,113) = 2.19$, $p = 0.093$, and personality traits, Wilks' $\Lambda = 0.971$, $F(3,108) = 1.08$, $p = 0.363$, indicating participants in integrated and sheltered employment were not significantly different in their level of perceived job demands and in their personality traits.

Table 2 shows correlation coefficients for all study variables. Higher scores on job satisfaction were significantly associated with older age ($r = 0.26$, $p = 0.006$) and with higher perceived job resources ($r = 0.42$, $p = 0.000$). Three subscales for job resources were significantly associated with higher job satisfaction: more meaningfulness ($r = 0.59$, $p = 0.000$), more social support from co-workers ($r = 0.34$, $p = 0.000$), and more social support from mentors ($r = 0.20$, $p = 0.033$). No significant association was found between job satisfaction and overall job demands, although one subscale for job demands was significantly associated with higher job satisfaction: lower emotional demands ($r = -0.26$, $p = 0.006$). No significant associations were found between job satisfaction and any of the personality traits (neuroticism, extraversion, conscientiousness).

Table 2. *Correlations between control variables, predictors and outcome variable*

	1	2	3	4	5	5A	5B	5C	6	6a	6b	6c	6d	6e	7	8	9
Control variables																	
1. Gender																	
2. Age																	
3. IQ level																	
4. Employment type																	
5. Job demands																	
APsychological demands																	
B Physical demands																	
C Emotional demands																	
6. Job resources																	
A Decision authority																	
B Skill utilization																	
C Meaningfulness																	
D Social support co-worker																	
E Social support mentor																	
7. Neuroticism																	
8. Extraversion																	
9. Conscientiousness																	
10. Job satisfaction																	

N ranges from 111 to 117 due to missing data; * $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$

Main effects of job demands, job resources and personality traits on job satisfaction (hypothesis 1)

Table 3 presents the findings from a three step hierarchical regression analysis predicting job satisfaction from personality traits (i.e. neuroticism, extraversion, conscientiousness) and job characteristics (i.e. job demands and job resources). Age was included in the first block as a control variable. The first model shows that age explained about 6% of variance in job satisfaction ($F(1,108) = 6.98, p = 0.009$), and was a significant predictor of job satisfaction ($\beta = .25, p = 0.009$). In the second model personality traits were entered, and there was no significant change in R square. The resulting model explained 9% of variance, and was significant ($F(4,105) = 2.56, p = 0.043$). In this model age was a significant predictor of job satisfaction ($\beta = .26, p = 0.007$), whereas neuroticism ($\beta = .14, p = 0.147$), extraversion ($\beta = .02, p = 0.820$), and conscientiousness ($\beta = .08, p = 0.376$) were no significant predictors of job satisfaction. Addition of job characteristics in the third model, leads to significant increase (17%) in explained variance. The resulting model explains 25% of variance ($F(6,103) = 5.85, p = 0.000$). Job resources were a significant predictor of enhanced job satisfaction ($\beta = .40, p = 0.000$), whereas job demands were not ($\beta = -.11, p = 0.240$). When the job characteristics were included in the model, age still significantly predicted job satisfaction ($\beta = .26, p = 0.005$), whereas beta's for personality traits remained insignificant.

Table 3. Hierarchical regression analysis with job satisfaction as a dependent variable

	R ²	R ² change	F change	B	Beta	t
Step 1	.06	.06	6.98**	.02		2.64**
Age					.25	
Step 2	.09	.03	1.09	.02		2.78**
Age				.11	.26	1.46
Neuroticism				.02	.14	.23
Extraversion				.07	.02	.89
Conscientiousness					.08	
Step 3	.25	.17	11.39***	.02		2.90**
Age				.13	.26	1.88
Neuroticism				-.02	.16	-.26
Extraversion				.06	-.02	.80
Conscientiousness				-.11	.07	-1.18
Job demands				.72	-.11	4.58***
Job resources					.40	

N = 110; * $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$

Mediating and moderating effects (hypotheses 2 & 3)

Hypothesis 2 concerns the mediating effects of job characteristics on the relationship between personality traits (i.e. neuroticism, extraversion, conscientiousness) and job satisfaction. Regression analysis indicated that personality traits did not significantly affect job demands ($R^2 = 0.02$, $F(3, 108) = 0.75$, $p = 0.525$), job resources ($R^2 = 0.02$, $F(3, 108) = 0.61$, $p = 0.609$), or job satisfaction ($R^2 = 0.02$, $F(3, 107) = 0.72$, $p = 0.540$). Hence the conditions for mediation as described by Baron and Kenny (1986) did not hold, and hypothesis 2 was rejected.

In hypothesis 3 potential moderating effects of neuroticism, extraversion, and conscientiousness on the relationship between job demands and job satisfaction, and the moderating effects of neuroticism, extraversion, and conscientiousness on the relationship between job resources and job satisfaction were examined. This resulted in a total of six separate hierarchical regression analyses (2 predictor variables x 3 moderator variables).

Results indicated that conscientiousness was a significant moderator of the relationship between job demands and job satisfaction. The overall model, with the two predictors and the interaction, was significant, $R^2 = .09$, $F(3, 107) = 3.33$, $p = 0.022$. In this model, job demands were entered as a first step and did not account for a significant amount of variance in job satisfaction ($R^2 = .03$, $F(1, 109) = 2.98$, $p = 0.087$). In the second step conscientiousness was entered, and did not significantly add to the amount of variance accounted for ($\Delta R^2 = .01$, $\Delta F(1, 108) = 0.66$, $p = 0.417$), and the resulting model was not significant ($F(2, 108) = 1.82$, $p = 0.168$). In the final step, the interaction term between job demands and conscientiousness was entered, which accounted for a significant proportion of the explained variance ($\Delta R^2 = .05$, $\Delta F(1, 107) = 6.18$, $p = 0.014$). In the resulting model job demands ($\beta = -.15$, $p = 0.104$) and conscientiousness ($\beta = .09$, $p = 0.313$) were not found to be significant predictors of job satisfaction, yet the interaction between job demands and conscientiousness was significant ($\beta = -.23$, $p = 0.014$). Examination of the interaction plot (Figure 2) showed a negative association between job demands and job satisfaction for participants with high levels of conscientiousness, which was not found for participants with low levels of conscientiousness.

The relationship between job demands and job satisfaction was not significantly moderated by neuroticism and extraversion, the overall models, including the interaction term for job demands x neuroticism, was not significant ($R^2 = .05$, $F(3, 107) = 1.67$, $p = 0.177$). Also, the overall model, including the interaction term for job demands x extraversion was not significant ($R^2 = .04$, $F(3, 107) = 1.58$, $p = 0.199$). The relationship between job resources and job satisfaction was not significantly moderated by any of the personality traits. Although the overall models including the interaction terms for job resources x neuroticism ($R^2 = .17$, $F(3, 107) = 7.40$, $p = 0.000$), for job resources x extraversion ($R^2 = .17$, $F(3, 107) = 7.10$, $p = 0.000$), and for job resources x conscientiousness ($R^2 = .15$, $F(3, 107) = 7.32$, $p = 0.000$) were significant, the interaction terms between job resources and neuroticism ($\beta = -.11$, $p = 0.260$), extraversion ($\beta = -.14$, $p = 0.124$), and conscientiousness ($\beta = -.14$, $p = 0.113$) were not significant predictors of job satisfaction.

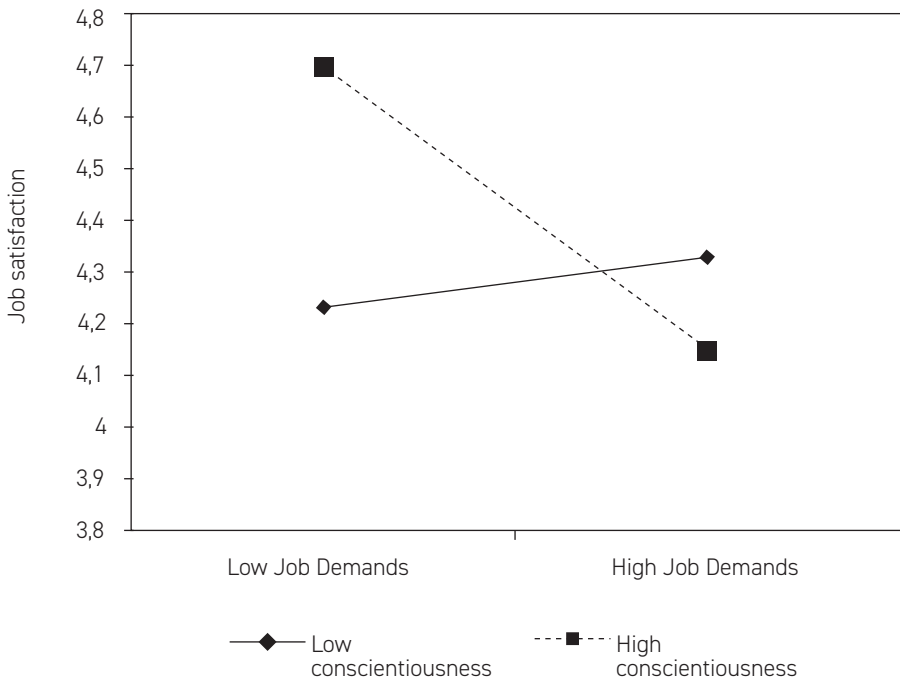


Figure 2. Simple slopes of job demands predicting job satisfaction for high and low conscientiousness

DISCUSSION

Using the JD-R model as a framework, the present study investigated the associations between job demands, job resources, personality traits and job satisfaction of people with intellectual disabilities.

In line with previous research, the present findings emphasize the importance of the work context in relation to job satisfaction (e.g. Akkerman et al., 2014; Akkerman et al., 2016; Flores et al., 2001). Job resources (i.e. decision authority, opportunities to utilize one's skills, the experience of meaningfulness, and social support from co-workers and mentors) were found to be the most significant predictor of job satisfaction, while job demands did not significantly predict job satisfaction of people with intellectual disabilities. It has been suggested within JD-R literature, that well-being factors, such as job satisfaction, are most strongly associated with the availability of positive, resourceful work characteristics, while negative work characteristics show stronger associations with negative outcomes (e.g. burnout and exhaustion) (Demerouti et al. 2001). This may help explain the lack of significant

associations between job demands and job satisfaction in this study. Nevertheless, Flores et al. (2011) did find a negative association between job demands and job satisfaction of people with intellectual disabilities. The lack of association could also be due to the fact that an overall scale was used for job demands. It should be noted that we found significant correlations for one of the subscales for job demands (i.e. emotional demands) and job satisfaction, but not for the other two subscales (i.e. psychological and physical demands) and job satisfaction. These different relationships might have cancelled each other out. More research is needed to clarify the role of job demands in relation to job satisfaction of people with intellectual disabilities. This may benefit from recent research that has made a distinction between job demands that are perceived as challenges and job demands that are perceived as hindrances (Van den Broeck, De Cuyper, De Witte, & Vansteenkiste, 2010). Additional research is needed to explain the role of challenges and hindrances in the workplace for people with intellectual disabilities, and how this is associated with their job satisfaction.

Contrary to expectations no significant associations were found between job satisfaction and the personality traits neuroticism, extraversion, and conscientiousness. The absence of a direct relationship between personality traits and job satisfaction is not in line with mainstream empirical research, that shows that these traits typically do show associations with job satisfaction among employees without disabilities, although exceptions have been found before (Judge et al., 2002). It has been suggested that the strength of the association between personality traits and job satisfaction may be dependent upon the type of occupation, for instance extraversion may be most related to satisfaction in social occupations, and conscientiousness in conventional and realistic jobs (Judge et al., 2002), which may be a partial explanation for the lack of association in this study.

Although no direct associations were found between personality traits and job satisfaction, the present study did find a moderating effect for conscientiousness on the relationship between job demands and job satisfaction. The results indicated that for people with intellectual disabilities who have a tendency to act dutifully, and aim for achievement (i.e. high conscientiousness) enhanced job demands were associated with reduced job satisfaction. This was not the case for people with intellectual disabilities who have low levels of conscientiousness. No other moderating effects were found for personality traits on the relationship between job characteristics and job satisfaction. Also, personality traits were not related to the overall perception of job demands and job resources. However, we did find significant associations between the personality traits neuroticism and extraversion and one of the subscales for job demands (i.e. psychological demands). As personality traits showed no significant associations with the other subscales for job demands, these associations might have cancelled each other out, resulting in a lack of association between personality traits and overall job demands. Overall, these results indicate that, although possibly not directly related, personality traits may nevertheless be relevant for job satisfaction of people

with intellectual disabilities. More research is needed to clarify the complex interactions between personality traits and job characteristics in relation to their job satisfaction.

The present study also identified age as a significant factor for job satisfaction. This is in line with other studies among non-disabled employees indicating a positive relationship between age and job satisfaction, although the association found in the current study appeared to be stronger (Ng & Feldman, 2010; Rhodes, 1983). As a possible explanation for the association between age and job satisfaction it has been suggested that older workers ultimately move into jobs that are a better fit with their personal characteristics and aspirations (Ng & Feldman, 2010; White & Spector, 1987). This may also be the case for employees with intellectual disabilities. In accordance with this the present results indicate that older employees with intellectual disabilities experience less job demands than younger employees, which may indicate a better fit with their capacities. It should however be noted that this may also mean that older employees with intellectual disabilities experience less challenges, as some job demands may be challenging instead of a hindrance (Van den Broeck, De Cuyper, De Witte, & Vansteenkiste, 2010). Moreover, they were also found to experience less opportunities for skill utilization, indicating less use of varied competencies and less developmental opportunities. Additional research may increase insight in age-related work requirements and resulting support needs.

In this study no significant differences were found between integrated and sheltered employment on job satisfaction. These findings are inconsistent with prior studies on job satisfaction of people with intellectual disabilities, which point to higher job satisfaction levels in integrated employment. This may be explained by inter-country variation in context and conditions in sheltered and integrated employment (Beyer, Jordán de Urríes, & Verdugo, 2010; Visier, 1998), which could lead to differences in job characteristics of the employment settings. It might also be explained by differences in personal characteristics of those employed in the different settings. Moreover, in the current study all subjects were in unpaid jobs, and hence the effects of pay could not be taken in account. It should be advised that future research incorporates the effect of pay on job satisfaction.

This study did find differences with respect to perceived job resources between participants in integrated and sheltered employment. People with intellectual disabilities in integrated employment experienced less opportunities to utilize and develop a variety of skills compared to those in sheltered employment, and experienced more social support from their co-workers. Although this did not lead to a difference on job satisfaction, it does point to both a weakness and strength of integrated employment in comparison to sheltered employment, and room for improvement in both integrated and sheltered employment.

Limitations

The participants in this study were all attending daycenters or in unpaid supported employment, as they were declared unfit for gainful employment, due to the severity of their disability. Findings of the present study may hence be limited in generalizability. It would be useful for future research to include people with intellectual disabilities with more work capacities and in other employment settings. The characteristics of the sample may have resulted in range restrictions regarding the study variables, hence affecting outcomes.

This study relied on self-report data for the job characteristics and job satisfaction. Although various measures have been taken to ensure comprehension, it is nevertheless conceivable that subjects did not fully understand questions or were unable to fully reflect on their situations. This may have affected reliability and validity of the instruments used. Moreover, as subjective measures were used for both job characteristics and job satisfaction, common method variance may have inflated the strength of the associations. Measures were taken to reduce potential problems of common method variance, for instance participants were assured that there were no right or wrong answers, they were encouraged to answer as honestly as possible, and anonymity was guaranteed (Podsakoff, Mackenzie, Lee, & Podsakoff, 2003). It is nevertheless recommended that future research includes objective measures of job characteristics to strengthen the findings.

Personal characteristics were assessed using peer ratings (of their mentor), for reasons of complexity of the questions and reducing the amount of questions for the clients. The use of proxies for measuring personality traits is unusual, although good experiences have been reported (Overbeek, Geluwie, De Schipper en & Schuengel, 2009). It would be interesting to have the same measures completed by people with intellectual disabilities themselves as well, in order to establish their own perception. Moreover, for reasons of time constraint an abbreviated version of the Big Five Inventory was used, which, although adequately reliable and valid, does have lower psychometric properties than the original questionnaire. Finally, as this study is cross-sectional in nature, caution is needed with respect to conclusions on the directions of the relationships.

Implications

The findings of the present study suggest a number of points for intervention by which job satisfaction of people with intellectual disabilities may be improved. First, present findings shed light on the role of job design. Paying attention to job resources, such as social support from co-workers and mentors may be very useful in relation to well-being at work. Considering the high correlations of meaningfulness with job satisfaction, it may be particularly important to enable people with intellectual disabilities to deploy their strengths and virtues in their work, in the service of something larger than they are, in

order to increase their well-being (see also Seligman, 2002). Of course paying attention to a persons' limitations, and decreasing overwhelming job demands remains important as well, particularly considering the fact that job demands are an important predictor of negative job outcomes like exhaustion (Bakker & Demerouti, 2007). Nevertheless, a focus on positive job characteristics may be an effective way for allowing people with intellectual disabilities to flourish at work and experience a high job satisfaction. What's more, it may be interesting to investigate to what extent people with intellectual disabilities can be empowered in their jobs and mobilize their own job resources.

Second, this study points out that, for adequately matching a person with a job, it may be relevant to take account of a persons' traits. These may influence how a person actually perceives job characteristics or what he can cope with, and hence what support is required.

Third, younger and older employees with intellectual disabilities may each have specific work-related support needs. Results suggest that both finding a good job that fits the characteristics and aspirations of younger employees, as well as continuing to provide sufficient challenges and opportunities for development for older employees can be important aspects in providing work-related support. Paying attention to ongoing job development and career planning thus remains a concern, in both integrated and sheltered employment.

The current study found significant factors explaining 25% of the variance in experienced job satisfaction. This means a large part of the variance in job satisfaction remains unexplained. More research is needed to investigate which other factors are associated with job satisfaction of people with intellectual disabilities. This may include other job demands or job resources than those included in this study, as well as other personal characteristics that were found to related to job satisfaction in other studies, such as for instance positive and negative affectivity, core self evaluations (represented by self-esteem, self-efficacy, locus of control and neuroticism) (Judge & Klinger, 2008; Griffin, Rosenberg, Cheyney, & Greenberg, 1996). Moreover, other theoretical frameworks may provide additional insights into the role of factors related to job satisfaction. For instance, self-determination theory (SDT; Deci & Ryan, 2000) may provide additional insight into motivational processes in relation to job satisfaction. Moreover, the satisfaction of basic psychological needs at work, as defined within SDT may provide an explanation of the processes underlying the associations between job resources and job satisfaction (Van den Broeck, Vansteenkiste, De Witte, & Lens, 2008). Finally, research is needed to examine the effectiveness of support strategies in relation to job satisfaction.

REFERENCES

- Aiken, L.S. & West, S.G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage.
- Akkerman, A., Janssen, C.G.C., Kef, S., & Meininger, H.P. (2014). Perspectives of employees with intellectual disabilities on themes relevant to their job satisfaction. An explorative study using Photovoice. *Journal of Applied Research in Intellectual Disabilities*, 27, 542-554.
- Akkerman, A., Janssen, C.G.C., Kef, S., & Meininger, H.P. (2016). Job satisfaction of people with intellectual disabilities in integrated and sheltered employment: an exploration of the literature. *Journal of Policy and Practice in Intellectual Disabilities*, 13, 205-216.
- Bakker, A.B., Boyd, C.M., Dollard, M., Gillespie, N., Winefield, A.H., & Stough, C. (2010). The role of personality in the job demands-resources model. A study of Australian academic staff. *Career Development International*, 15, 622-636.
- Bakker, A.B., & Demerouti, E. (2007). The job demands-resources model: State of the art. *Journal of Managerial Psychology*, 22, 309-328.
- Bakker, A.B., Demerouti, E., De Boer, E., & Schaufeli, W.B. (2003). Job demands and job resources as predictors of absence duration and frequency. *Journal of Vocational Behavior*, 62, 341-356.
- Bakker, A. B., Demerouti, E., & Verbeke, W. (2004). Using the job demands-resources model to predict burnout and performance. *Human Resource Management*, 43, 83-104.
- Baron, R.M. & Kenny, D.A. (1986). The moderator-mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173-1182.
- Beyer, S., Jordán de Urries, F., & Verdugo, M.A. (2010). A comparative study of the situation of supported employment in Europe. *Journal of Policy and Practice in Intellectual Disabilities*, 7, 130-136.
- Bos, J.T., Donders, N.C.G.M., Bouwman-Brouwer, K.M., & Gulden, J.W.J. van der (2009). Work characteristics and determinants of job satisfaction in four age groups: university employees' point of view. *International Archives of Occupational and Environmental Health*, 82, 1249-1259.
- Boudrias, J.S., Desrumaux, P., Gaudreau, P., Nelson, K., Brunet, L., & Savoie, A. (2011). Modeling the experience of psychological health at work: The role of personal resources, social organizational resources, and job demands. *International Journal of Stress Management*, 18, 372-395.

- Boyd, S.E. (2013). *Personality and Personality Disorder in Adults with Intellectual Disabilities* (Doctoral dissertation). Kentucky: University of Kentucky.
- Brayfield, A.H., & Rothe, H.F. (1951). An index of job satisfaction. *Journal of Applied Psychology, 35*, 307-311.
- Cummins, R. A. (2005). Moving from the quality of life concept to a theory. *Journal of Intellectual Disability Research, 49*, 699-706.
- Deci, E. L., & Ryan, R. M. (2000). The 'what' and 'why' of goal pursuits: human needs and the self-determination of behavior. *Psychological Inquiry, 11*, 227-268.
- De Lange, A. H., De Witte, H., & Notelaers, G. (2008). Should I stay or should I go? Examining longitudinal relations among job resources and work engagement for stayers versus movers. *Work and Stress, 22*, 201-223.
- Demerouti, E., Bakker, A.B., Nachreiner, F., & Schaufeli, W.B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology, 86*, 499-512.
- Finlay, W.M.L., & Lyons, E. (2001). Methodological issues in interviewing and using self-report questionnaires with people with mental retardation. *Psychological Assessment, 13*, 319-335.
- Flores, N., Jenaro, C., Orgaz, M.B., & Martín, M.V. (2011). Understanding quality of working life of workers with intellectual disabilities. *Journal of Applied Research in Intellectual Disabilities, 24*, 133-141.
- Fritzsche, B.A. & Parrish, T.H. (2005). Theories and research on job satisfaction. In: S. D. Brown & R.W. Lent (Eds.), *Career development and counselling: Putting theory and research to work* (pp. 180-202). Hoboken, NJ, US: John Wiley & Sons Inc.
- Frye, C. M. (1996). *New evidence for the job characteristics model: A meta-analysis of the job characteristics-job satisfaction relationship using composite correlations*. Paper presented at the 11th annual meeting of the Society for Industrial and Organizational Psychology, San Diego, CA.
- Griffin, D.K., Rosenberg, H., Cheyney, W., & Greenberg, B. (1996). A comparison of self-esteem and job satisfaction of adults with mild mental retardation in sheltered workshops and supported employment. *Education and Training in Mental Retardation and Developmental Disabilities, 31*, 142-150.
- Heller, D., Watson, D. & Ilies, R. (2004). The role of person versus situation in life satisfaction: A critical examination. *Psychological Bulletin, 130*, 574-600.
- Jiranek, D., & Kirby, N. (1990). The job satisfaction and/or psychological well-being of young adults with an intellectual disability and nondisabled young adults in either sheltered employment, competitive employment or unemployment. *Australia and New Zealand Journal of Developmental Disabilities, 16*, 133-148.

- John, O. P., Donahue, E. M., & Kentle, R. L. (1991). *The Big Five Inventory-Versions 4a and 54*. Berkeley, CA: University of California, Berkeley, Institute of Personality and Social Research.
- Judge, T.A., Bono, J.E., & Locke, E.A. (2000). Personality and job satisfaction: The mediating role of job characteristics. *Journal of Applied Psychology, 85*, 237-249.
- Judge, T.A., & Church, A.H. (2000). Job satisfaction: Research and practice. In C.L. Cooper & E.A. Locke (Eds.), *Industrial and organizational psychology: linking theory with practice* (pp. 166-198). Oxford, UK: Blackwell.
- Judge, T.A., Locke, E.A., Durham, C.C., & Kluger, A.N. (1998). Dispositional effects on job and life satisfaction: The role of core evaluations. *Journal of Applied Psychology, 83*, 17-34.
- Judge, T.A., Heller, D., & Mount, M.K. (2002). Five-Factor Model of Personality and Job Satisfaction: A Meta-Analysis. *Journal of Applied Psychology, 87*, 530-541.
- Judge, T.A., & Klinger, R. (2008). Job satisfaction. Subjective well-being at work. In: M. Eid & R.L. Larsen (eds.), *The science of subjective well-being* (pp. 393-413). New York: Guilford Publications.
- Judge, T.A., & Larsen, R.J. (2001). Dispositional affect and job satisfaction: A review and theoretical extension. *Organizational Behavior and Human Decision Processes, 86*, 67-98.
- Judge, T.A., Thoresen, C.J., Bono, J.E., & Patton, G.K. (2001). The Job Satisfaction-Job Performance Relationship: A Qualitative and Quantitative Review. *Psychological Bulletin, 127*, 376-407.
- Judge, T.A., & Watanabe, S. (1993). Another look at the job satisfaction-life satisfaction relationship. *Journal of Applied Psychology, 78*, 939-948.
- Karasek, R., Brisson, C., Kawamaki, N., Houtman, I., Bongers, P., & Amick, B. (1998). The Job Content Questionnaire (JCQ): An Instrument for Internationally Comparative Assessments of Psychosocial Job Characteristics. *Journal of Occupational Health Psychology, 3*, 322-355.
- Lidher, J., Martin, D. M., Jayaprakash, M. S., & Roy, A. (2005). Personality disorders in people with learning disabilities: follow-up of a community survey. *Journal of Intellectual Disability Research, 49*, 845-851.
- Lysaght, R., Ouellette-Kuntz, H., & Morrison, C. (2009). Meaning and value of productivity to adults with intellectual disabilities. *Intellectual and Developmental Disabilities, 47*, 413-424.
- McAfee, J. K., & McNaughton, D. (1997). Transitional outcomes – job satisfaction of workers with disabilities. Part one: general job satisfaction. *Journal of Vocational Rehabilitation, 8*, 135-142.

- Michon, H.W.C., Kroon, H., Van Weeghel, J., & Schene, A.H. (2004). The Generic Work Behavior Questionnaire (GWBQ): Assessment of core dimensions of generic work behavior of people with wevere mental illlnesses in vocational rehabilitation. *Psychiatric Rehabilitation Journal*, 28, 40-47.
- Moseley, C.R. (1988). Job satisfaction research: implications for supported employment. *The Journal of the Association for Persons with Severe Handicaps*, 13, 211-219.
- Nielsen, M.B., Mearns, K., Mathiesen, S.B., & Eid, J. (2011). Using the Job Demands–Resources model to investigate risk perception, safety climate and job satisfaction in safety critical organizations, *Scandinavian Journal of Psychology*, 52, 465-475.
- Ng, T.W.H., & Feldman, D.C. (2010). The relationships of age with job attitudes: a meta-analysis. *Personnel Psychology*, 63, 677-718.
- Overbeek, M.M., Geluwie, K., De Schipper, J.C. & Schuengel, C. (2009). *Behavior problems and Big Five personality characteristics of youngsters with intellectual disabilities*. Poster presented at SRCD, Denver, USA.
- Podsakoff, P. M., Mackenzie, S. B., Lee, J., & Podsakoff, N. P. (2003). Common method bias in behavioral research. A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88, 879-903.
- Rammstedt, B., & John, O.P. (2007). Measuring personality in one minute or less: A 10-item short version of the Big Five Inventory in English and German. *Journal of Research in Personality*, 41, 203-212.
- Rhodes, S.R. (1983). Age-related differences in work attitudes and behavior: A review and conceptual analysis. *Psychological Bulletin*, 93, 328–367.
- Schalock, R.L., Bonham, G.S., & Marchand, C.B. (2000). Consumer based quality of life assessment: a path model of perceived satisfaction. *Evaluation and Program Planning*, 23, 77-87.
- Schaufeli, W.B., & Taris, T.W. (2014). A critical review of the Job Demands-Resources Model: Implications for improving work and health. In G. Bauer & O. Hämmig (Eds), *Bridging occupational, organizational and public health* (pp. 43-68). Dordrecht: Springer.
- Seltzer, M.M. (1984). Patterns of job satisfaction among mentally retarded adults. *Applied Research in Mental Retardation*, 5, 147-159.
- Spector, P.E. (1997). *Job satisfaction: Application, assessment, causes, and consequences*. Thousand Oaks, CA: Sage.
- Tabachnik, B.G., & Fidell, L.S. (2007). *Using multivariate statistics (5th ed.)*. Thousand Oaks, CA: Pearson Education.
- Test, D.W., Carver, T. Ewers, L. Haddad, J., & Person, J. (2000). Longitudinal job satisfaction of persons in supported employment. *Education and Training in Mental Retardation and Developmental Disabilities*, 35, 365-373.

- Test, D.W., Hinson, K.B., Solow, J., & Keul, P. (1993). Job satisfaction of persons in supported employment. *Education and Training in Mental Retardation*, 28, 38-46.
- Van den Broeck, A., De Cuyper, N., De Witte, H., & Vansteenkiste, M. (2010). Not all job demands are equal: Differentiating job hindrances and job challenges in the Job Demands-Resources model. *European Journal of Work and Organizational Psychology*, 19, 735-759.
- Van den Broeck, A., Vansteenkiste, M., Witte, H. de, & Lens, W. (2008). Explaining the relationships between job characteristics, burnout, and engagement: The role of basic psychological need satisfaction. *Work & Stress*, 22, 277-294.
- Van der Doef, M., & Maes, S. (1999). The Leiden quality of work questionnaire: Its construction, factor structure, and psychometric qualities. *Psychological Reports*, 85, 954-962.
- Van Veldhoven M., & Meijman T.F. (1994). *Het meten van psychosociale arbeidsbelasting met een vragenlijst: de vragenlijst beleving en beoordeling van de arbeid (VBBA)*. Amsterdam: NIA.
- Visier, L. (1998). Sheltered employment for persons with disabilities. *International Labour Review*, 137, 347-365.
- White, A.T., & Spector, P.E. (1987). An investigation of age-related factors in the age-jobsatisfaction relationship. *Psychology and Aging*, 2, 261-265.
- Xanthopoulou, D., Bakker, A.B., Demerouti, E., & Schaufeli, W.B. (2007). The role of personal resources in the job demands-resources model. *International Journal of Stress Management*, 14, 121-141.

